

# Merge two sorted linked lists

This challenge is part of a tutorial track by [MyCodeSchool](#)

Given pointers to the heads of two sorted linked lists, merge them into a single, sorted linked list. Either head pointer may be null meaning that the corresponding list is empty.

## Example

*headA* refers to  $1 \rightarrow 3 \rightarrow 7 \rightarrow NULL$

*headB* refers to  $1 \rightarrow 2 \rightarrow NULL$

The new list is  $1 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 7 \rightarrow NULL$

## Function Description

Complete the *mergeLists* function in the editor below.

*mergeLists* has the following parameters:

- *SinglyLinkedListNode* pointer *headA*: a reference to the head of a list
- *SinglyLinkedListNode* pointer *headB*: a reference to the head of a list

## Returns

- *SinglyLinkedListNode* pointer: a reference to the head of the merged list

## Input Format

The first line contains an integer *t*, the number of test cases.

The format for each test case is as follows:

The first line contains an integer *n*, the length of the first linked list.

The next *n* lines contain an integer each, the elements of the linked list.

The next line contains an integer *m*, the length of the second linked list.

The next *m* lines contain an integer each, the elements of the second linked list.

## Constraints

- $1 \leq t \leq 10$
- $1 \leq n, m \leq 1000$
- $1 \leq list[i] \leq 1000$ , where *list*[*i*] is the *i*<sup>th</sup> element of the list.

## Sample Input

```
1
3
1
```

2  
3  
2  
3  
4

### Sample Output

1 2 3 3 4

### Explanation

The first linked list is: **1** → **3** → **7** → *NULL*

The second linked list is: **3** → **4** → *NULL*

Hence, the merged linked list is: **1** → **2** → **3** → **3** → **4** → *NULL*